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The Evolutionary Kinetics of Cholestasis after ERCP: Experience of an Hospital Department

Omeima Cherkaoui El Malki[*1], I. Errabih[1], M. Cherkaoui Malki[1], S. Mechhor[1], N. Benzzoubeir[1] and H. El Bacha[1]

[1]Hepato-Gastro-Enterology and Proctology Department "Medicine B" Ibn Sina Hospital – UH Ibn Sina Mohammed V University Rabat, Morocco

Corresponding Author:
Omeima Cherkaoui El Malki

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Abstract: Endoscopic Retrograde Cholangiopancreatography (ERCP) is an examination combining endoscopy and fluoroscopy that allows for the diagnosis and, especially, the treatment of diseases of the biliopancreatic system, and more specifically, obstructive jaundice of the bile ducts. The timing of ERCP depends on the etiology.

The aim of our study is to investigate the evolving kinetics of cholestasis after ERCP.

Keywords: ERCP, Cholestatsis, biliary obstruction, kinestic.

INTRODUCTION

Endoscopic Retrograde Cholangiopancreatography (ERCP) is an examination combining endoscopy and fluoroscopy that allows for the diagnosis and, especially, the treatment of diseases of the biliopancreatic system, and more specifically, obstructive jaundice of the bile ducts. The aim of our study is to investigate the evolving kinetics of cholestasis after ERCP.

METHODS

This is a descriptive prospective study conducted within our department over a one-year period, including all patients admitted for obstructive cholestatic jaundice. We included all cases of obstructive cholestatic jaundice that underwent ERCP and excluded cases of failed cannulation of the bile ducts and patients lost to follow-up. We analyzed the kinetics of cholestasis in patients one week after ERCP based on bilirubin levels. We recorded age, sex, indication, type of stent, and the outcome after ERCP.

RESULTS

50 patients underwent ERCP during this period. The average age was 57.74 years (18-86). The sex ratio (M/F) was 1.5.

The indication for ERCP was angiocholitis due to pancreatic head tumor in 15 patients (30%), lithiasis angiocholitis in 19 patients (38%), angiocholitis due to biliary tract tumor in 10 patients (20%), angiocholitis due to fistulised hydatid cyst in 2 patients (4%) and pre-chemotherapy drainage for biliary tract tumor without angiocholitis in 4 patients (8%).

Biliary prosthesis drainage was performed in 30 patients (90%) and double biliary and pancreatic prosthesis drainage in 3 patients (10%). Plastic stents were used in 19 patients (57.5%) and metal stents in 14 patients (42.5%).

Lithiasis extraction was performed in 17 patients (34%).

The evolving kinetics of cholestasis showed a decrease in 84% of cases and an increase in 6% of cases.

The evolutionary kinetics of cholestasis was as follows: a decrease between (1-20%) in 5 patients (10%), a decrease between (21-50%) in 16 patients (32%), a decrease between (51-80%) in 18 patients (36%) and a decrease between (81-100%) in 8 patients (16%) (Including 5 (62.5%) with lithiasis angiocholitis, 2 (25%) angiocholitis on pancreatic head tumor, and 1 (12.5%) angiocholitis on Cholangiocarcinoma).

Figure 1: Endoscopic Retro Grade Cholangio Pancreatigraphy

Furthermore, we note an increase in cholestasis in 3 patients (6%) (an increase of 5% in a metastatic pancreatic head tumor with infiltration of the duodenal wall, and an increase of 37% in 2 metastatic Cholangiocarcinoma despite good drainage).

It is noted that the percentage decrease in cholestasis was greater in cases of lithiasis, with a reduction of more than 81% of the initial cholestasis values, followed by pancreatic head tumors with a decrease of 49%, and finally a decrease not exceeding 45% in cholangiocarcinomas

DISCUSSION

Endoscopic Retrograde Cholangiopancreatography (ERCP) was introduced over four decades ago as a diagnostic tool for biliary and pancreatic diseases. Currently, ERCP is primarily used as a therapeutic approach to relieve obstruction of the bile or pancreatic ducts, thereby reducing cholestasis. (1)

The timing of ERCP depends on the etiology. In the study by Lars Enochsson et al. (2), it is most often performed urgently (66%) for cholangitis of various etiologies, while elective ERCPs scheduled for

diagnostic workup of a bile duct stricture represent 34% of cases. The average age of patients is 67.6 years, with a female predominance (55%).

Figure 2: Metallic Prosthesis

In comparison to our study: 27 patients (90%) underwent ERCP within 24 hours to 1 week, while 3 (10%) were scheduled electively. This difference in percentage could be explained by a selection bias, whereas the average age was 59 years with a male predominance (53%). Urgent indications were dominated by cholangitis caused by: tumor compression of the pancreatic head in 11 patients (36.6%), lithiasis in 9 patients (30%), and tumor compression of the bile ducts in 7 patients (23%). Deferred indications were represented by 3 patients (10%) for drainage before chemotherapy.

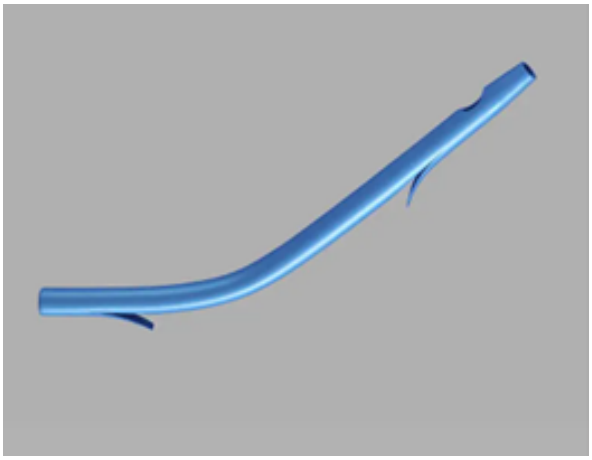

Figure 3: Plastic Prosthesis

Cannulation of the bile ducts associated with cannulation of the Wirsung duct helps prevent post-ERCP pancreatitis in high-risk patients. In the study by Lars Enochsson et al. (2), the incidence of pancreatitis is 5.3% with Wirsung cannulation versus 1.8% without it, and according to Swahn et al. (3), this risk can be reduced from 3.2% to 2.6% by placing a pancreatic stent. In our study, 3 (10%) high-risk patients underwent double cannulation: biliary and pancreatic.

The choice of stent used depends on several factors, the most important being the nature of the pathology causing cholestasis and the patients' life expectancy. For benign conditions, such as bile duct lithiasis, the study by Conway et al. (4) shows an 86% success rate with plastic stents. For malignant conditions, metal stents offer better efficacy and fewer complications and endoscopic re-interventions compared to plastic stents. (5)

In our study, 21 patients (70%) had stent placement, all for tumor pathology, and 9 patients (30%) had lithiasis extraction without stent placement. Plastic stents were used in 53% of cases and metal stents in 47% of cases. This choice, despite the recommendations of various studies, is justified by the high cost and unavailability of metal stents.

The kinetics of cholestasis after ERCP is characterized by a decrease, the extent of which depends on the initial etiology. Regarding cholangiocarcinomas, Sangchan et al. (6) report a 40% decrease in cholestasis markers at 1 month of drainage using plastic stents compared to 70.4% with metal stents. These results align with our study, where plastic stents were predominantly used and the average decrease was 45%. In the study by Yuji Sakai et al. (7) on pancreatic head tumors, the decrease in cholestasis at 1 month was 84.9%, which does not align with our study where the decrease did not exceed 49%. This may be explained by our early evaluation done at 1 week. In the study by Ronnie Tung et al. (8) on bile duct lithiasis, they noted a decrease of over 90%, which aligns with our study: a decrease of 81%.

CONCLUSION

Endoscopic treatment of obstructive jaundice is highly effective (>90%) and leads to a significant reduction in bilirubin levels within one week of ERCP.

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Informed Consent

Written informed consent was obtained from the patient for their anonymized information to be published in this article.

Declaration of Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Author Contributions:

All authors have contributed to the conduct of this work. All authors also declare that they have read and approved the final version of the manuscript.

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